

REMARKS

The present invention relates to a method of making molded articles having at least one field of hooks integrally molded thereon, the hook-bearing surface of the molded article having a draft angle of less than 45° with respect to the hook forming surface of the mold. As set forth in the specification at paragraph [0016], for the purposes of this patent, the term “draft angle” means the angle defined by the surface of a mold and the theoretical plane along which a molded surface moves as it is withdrawn from the mold.” Such surfaces will experience shear when the molded article is removed from the mold. Thus, the claims define a method wherein the angle of the hook-bearing surface of the molded product with respect to the direction in which that surface moves as it is removed from the mold is less than 45°. Specifically, the hooks on the molded article are formed by an insert having a field of hook-shaped cavities, the insert being positioned in an aperture in the mold, and retracting the insert from the molded article to leave the molded hooks in their hook shape before the molded article is removed from the mold. Thus the hooks are not damaged by the shear forces at the surface of the hooks during the removal of the molded article from the mold.

By the present amendment to the specification, paragraphs [0007] and [0008] are amended to correct an obvious error. The amended language is consistent with the specification as originally filed such as at paragraph [0009], line 9; paragraph [0010], line 11; paragraph [0011], line 3; and claims 2, 4, 9, and 11, and therefore no new matter is added to the application.

Claims 1, 2, and 4 have been cancelled by the amendment. Claims 3, 5-7 and 11 stand withdrawn pursuant to a restriction requirement. The withdrawal of these claims is traversed for the following reasons.

In paragraph 2 of the Office Action, the Examiner states that the apparatus claims 1-7 and the method claims 8-10 are distinct because the process of claims 8-10 can be practiced by an apparatus that does not require the insert to be contiguous with the surface. That limitation appears only in claim 1, and in claim 2 by virtue of its dependence from claim 1. The limitation does not appear in independent apparatus claim 3, or in original claims 4-7 which depend from claim 3. Claims 1 and 2 are now cancelled, thereby obviating this basis for the restriction requirement. Independent claim 3 has been amended to incorporate the limitation of claim 4, which is now canceled. Claim 3 also has been amended to conform more closely with amended method claim 8. Accordingly, it is believed that the basis for the restriction as set forth in paragraph 2 of the Office Action has been overcome.

In paragraph 3 of the Office Action, the Examiner states that claims 1-7 (now claims 3 and 5-7), which relate to the apparatus, and claim 11, which relates to the product made, are distinct because the product can be made by “an apparatus having build-in [*sic: built-in*] hook shaped cavities, i.e., no insert is needed to provide hook-shaped cavities in a molding cavity.” Yet if the hook cavities were “built in” to the apparatus then it would not be possible to remove the molded article of claim 11 from the mold cavity without damaging the hooks because of the shear at the hook-bearing surface caused by the fact that the draft angle is less than 45°. Thus it is necessary to have an insert which can be retracted from the molded hooks to allow the article to be withdrawn from the mold. Claim 11 has been amended for clarity. It is believed that the

basis for the restriction requirement as set forth in paragraph 3 of the Office Action has been overcome.

Similarly, in paragraph 4 of the Office Action, the Examiner states that the claimed process of making and product made are distinct because the product can be made by a process that does not require an insert to provide hook-shaped cavities in a molding cavity. Yet as explained above, because of the claimed draft angle, it is in fact necessary to have an insert for forming the molded hooks, which insert can be retracted to allow the article to be withdrawn from the mold. Thus it is believed that this ground for the restriction requirement has been overcome.

It is respectfully submitted that withdrawing these restriction requirements would not place a serious burden on the examiner, because in the molding arts the same references disclose apparatus, methods of using the apparatus, and the molded articles. In fact, the two references cited by the Examiner in the Office Action include all three aspects in their respective disclosures. Thus, the status of these different aspects of the invention is not so separate, nor is the subject matter so divergent, as to mandate these restriction requirements. Therefore, in view of the foregoing remarks and the amendments made to the claims, it is respectfully requested that these restriction requirements be withdrawn.

Claim 8 has been amended for clarity, and to incorporate the limitation of claim 9 therein. Claim 9 accordingly has been cancelled. Claim 10 remains unchanged. Claim 11 is amended for clarity. New claims 12-17 further define the present invention. Claims 12-16 depend directly or indirectly from claim 8. Independent claim 17 is in Jepson form.

The rejection of claims 8 and 10 as anticipated under 35 USC 102(b) by Buzzell et al (U.S. 6,187,247) is respectfully traversed. The Examiner makes particular note of the Buzzell disclosure at col. 8, line 28 – col. 9, line 18, and Figs. 13A-13C. These figures illustrate a mold 148 used to make a product 150, the product being a fastener having a plurality of fastener elements (hooks) 162 formed on a surface thereof. Mold 148 includes a side action block 156 that is retractable in the direction of arrow 167 after the hook elements have been formed on product 150. The arrow 167 also illustrates the direction in which the product 150 can be removed from the mold, once the mold halves 152, 154 have been separated as shown in FIG. 13C. It may be seen in FIG. 13C that the draft angle of the hook-bearing surface of the product 150 is about 90°, i.e., the hook bearing surface of the molded product is withdrawn from the mold in a direction substantially perpendicular to the plane of the hooks, and there is no shear at the hook bearing surface as the product is removed from the mold. Since the draft angle is not less than 45°, the structure illustrated in FIGS. 13A-C does not anticipate claim 8, as amended, or any of the remaining claims in the application.

The rejection of claims 8-10 as anticipated under 35 USC 102(b) by Harvey (U.S. 6,224,364) also is respectfully traversed. The Examiner makes particular note of the Harvey reference at col. 6, lines 10-67, and Figs. 5 and 6A-C. As noted in the specification of the present application at paragraph [0006], the Harvey patent discloses a molded product having an array of fastener elements integrally molded with the product, the product being molded in a closed cavity die, at least one of the parts of the die having a movable segment constructed to be retracted across the mold cavity, such that the fastener element cavities and the mold cavity can be filled under different filling conditions and molded under different conditions. In the embodiment illustrated in Figs. 6A-C, two mold halves 24" and 30 are joined together to define a

mold cavity, and a movable mold block 32 having a surface bearing hook-shaped cavities is positioned in mold half 30 to abut the inner surface of mold half 24". A first portion of molten plastic is injected through gate 52 into base cavity 50 to define a mold base 54. The movable block 32 is then partially retracted, carrying with it molded base 54, and a different thermoplastic is injected through gates 28a, 28b, and 52 into cavity 22 between mold halves 24" and 30. The mold halves can then be separated, and the product released from the mold. It may be seen that the draft angle of the hook bearing surface of the product, i.e., the angle between the plane of the hooks and the direction in which the molded product is removed from the mold, is about 90°, and there is no shear at the hook bearing surface as the product is removed from the mold. Since the draft angle is not less than 45°, the structure illustrated in Figs. 6A-C does not anticipate claim 8, as amended, or any of the remaining claims in the application.

In view of the foregoing, it is respectfully submitted that the grounds for rejection have been overcome, and a Notice of Allowance is respectfully requested.

In the event that any additional fee is owned in connection with this amendment, and in particular with respect to the newly submitted claims, the Office is authorized to charge any amount due to Deposit Account No. 10-1202.

Respectfully submitted,



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